

# PATENT SPECIFICATION (11)

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## (54) APPARATUS FOR CONTROLLING A DISTANCE OF TRAVEL OF A DEPOSITOR FOR ARTIFICIAL STONES

(71) We, FRIED. KRUPP GESELLSCHAFT MIT BESCHRANKTER HAFTUNG, of 103 Alton-  
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 of Germany, a German Body Corporate, do  
 hereby declare the invention, for which we  
 pray that a patent may be granted to us,  
 and the method by which it is to be per-  
 formed, to be particularly described in and  
 by the following statement:—

The invention is concerned with control-  
 ling the distance of travel on a stationary  
 girder of a carriage, carrying a depositor  
 which picks up artificial stones, in particular  
 stones of sand lime or concrete, from a  
 preparation station and stacks them onto a  
 transporter in accordance with a selectable  
 programme.

It is known to control the deposition of  
 the artificial stones by an intermittently  
 rotating cam roll, which has a large dia-  
 meter to ensure accuracy of each depositing  
 point and is somewhat longer than the  
 transporter.

On change of the deposition programme  
 the cam roller, which is very heavy and is  
 mounted high up, must be taken down and  
 replaced by another. This operation is very  
 inconvenient, takes a great deal of time and  
 may endanger the personnel.

Another proposal is to use a transparent  
 plate to which are stuck opaque strips. The  
 plate, which reciprocates stepwise in depend-  
 ence on the movement of the carriage, is  
 scanned optically. The strips are applied to  
 the plate in correspondence with a deter-  
 mined stacking programme.

Exchange and adjustment of the strip-  
 carrying plate again takes considerable time  
 and the optical system used is not absolutely  
 reliable in the dusty conditions of a sand  
 lime factory.

The object of the invention is to provide  
 a reliable method of ensuring exact deposi-  
 tion of the artificial stones in accordance  
 with a variable programme, which permits of  
 rapid and easy change in the programme and  
 which enables corrections in the distance  
 of travel to be easily made.

The invention accordingly provides appa-  
 ratus for transferring artificial stones from  
 a preparation station and stacking them on  
 a transporter in accordance with a pre-set  
 programme, comprising a carriage, carrying  
 a depositor and movable on an elevated  
 girder from a position above the preparation  
 station to different deposition points above  
 the transporter, a pulse generator on the  
 carriage which emits a pulse in response to  
 each increment of travel of the carriage  
 along the girder from the preparation  
 station towards the transporter, an electronic  
 binary counter for counting the pulses, a  
 programme selector switch in which succes-  
 sive desired distances of travel are set up  
 in the binary code, and means for stopping  
 the carriage when the count in the counter  
 coincides with that set up in the programme  
 selector switch.

An embodiment of the invention will now  
 be described in detail, by way of example,  
 with reference to the accompanying draw-  
 ings, in which:—

Figure 1 is a side elevation of the appa-  
 ratus,

Figure 2 is a diagram showing the mecha-  
 nical and electrical parts used for controlling  
 the distance of travel and

Figure 3 shows a programme selector  
 switch.

As shown in Figure 1, a carriage 2, driven  
 by an electric motor 10 (Fig. 2) and carrying  
 a depositor 3, is capable of travel on an  
 elevated girder 1. In use, the depositor 3  
 picks up batches of artificial stones 5, for  
 example of sand lime or concrete, arriving  
 at a preparation station 4 and stacks them  
 in juxtaposition and in layers on a trans-  
 porter 6. Since the artificial stones 5 are  
 to be hardened by treatment in a heating  
 vessel having a rounded top, it is necessary  
 for the upper layers of stones in the stack  
 on the transporter 6 to be shorter than the  
 lower layers in order to make maximum  
 use of the capacity of the heating vessel.

This requires the carriage to travel dif-

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ferent, though partially repeated, distances on the girder 1 from the preparation station 4 to the transporter 6.

The various distances, for example the distance 343 mm, which the carriage 2 is required to travel are set up in millimetres in the binary code, in a programme selector switch 7, Fig. 2, mounted on the girder 1. As shown in Fig. 3, this switch consists of a number of endless belts 11 into which cams 12 are inserted to set up the programme in the binary code. A pulse generator 8 on the carriage 2, constituted by a perforated disc and an associated electronic switch, emits a pulse for each millimetre of travel of the carriage and these pulses are counted by an electronic binary counter 9, Fig. 2. On coincidence between a binary number set up in the switch 7 and the count in the counter 9, a stopping impulse is sent to the driving motor 10 of the carriage 2 and this impulse also applies a brake to the carriage. The gripper 3 descends with the gripped batch of stones 5 and deposits them on the transporter 6 at the position demanded by the programme.

Preferably, in order to accelerate stacking of the stones on the transporter 6, the carriage 2 initially travels fast and, to ensure millimetre accurate determination of the deposition point, provision is made for switching it to slow travel at a short predetermined distance before the first deposition point. In this case the counter 9 is a subtractive counter, which is set at this point by the switch 7 to the count corresponding to the further travel required of the carriage 2, which is brought to a halt

when the count in the counter is reduced to zero.

#### WHAT WE CLAIM IS:—

1. Apparatus for transferring artificial stones from a preparation station and stacking them on a transporter in accordance with a pre-set programme, comprising a carriage, carrying a depositor and movable on an elevated girder from a position above the preparation station to different deposition points above the transporter, a pulse generator on the carriage which emits a pulse in response to each increment of travel of the carriage along the girder from the preparation station towards the transporter, an electronic binary counter for counting the pulses, a programmer selector switch in which successive desired distances of travel are set up in the binary code, and means for stopping the carriage when the count in the counter coincides with that set up in the programme selector switch.

2. Apparatus according to claim 1, which includes means for switching the carriage from fast to slow travel at a predetermined distance from the first deposition point.

3. Apparatus according to claim 2, in which the counter is a subtractive counter.

4. Apparatus according to claim 1, substantially as described herein with reference to the accompanying drawings.

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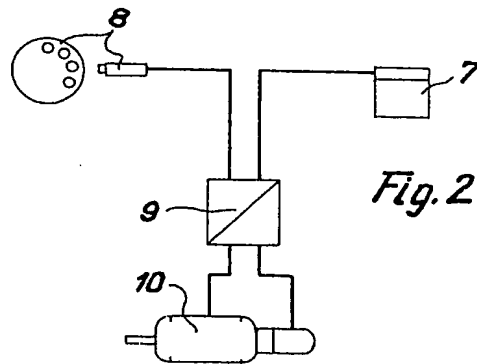
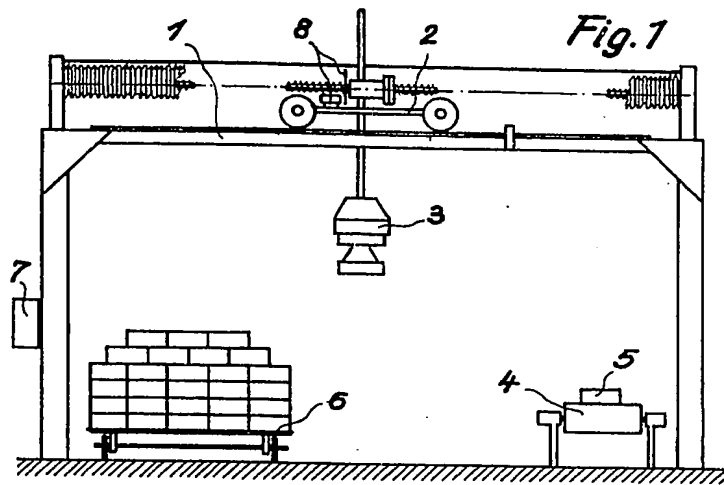
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